NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date:

Region: Mooresville Regional Office
County: Cleveland
NC Facility ID: 2300377
Inspector's Name: Carlotta Adams
Date of Last Inspection: 03/30/2021
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Clearwater Paper Shelby, LLC

Facility Address:
Clearwater Paper Shelby, LLC
671 Washburn Switch Road
Shelby, NC 28150

SIC: 2611 / Pulp Mills
NAICS: 32211 / Pulp Mills

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 02D .0503, 02D .0515, 02D .0516, 02D .0521, 02D .0524, 02D .1806
NSPS: Subpart Dc, Subpart IIII, Subpart JJJJ
NESHAP: Subpart ZZZZ
PSD: N/A
PSD Avoidance: N/A
NC Toxics: 02Q .0711, 02D .1100
112(r):
Other:

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Kim Gissy Environmental Engineer II (704) 476-3805 671 Washburn Switch Road Shelby, NC 28150	James Sloan Plant Manager (704) 476-3876 671 Washburn Switch Road Shelby, NC 28150	Kim Gissy Environmental Engineer II (704) 476-3805 671 Washburn Switch Road Shelby, NC 28150

Application Data

Application Number: 2300377.20B
Date Received: 09/11/2020
Application Type: Renewal
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 10139/T08
Existing Permit Issue Date: 11/02/2020
Existing Permit Expiration Date: 07/31/2021

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2019	0.3500	32.31	47.47	161.74	16.60	3.66	2.42 [Methanol (methyl alcohol)]
2018	0.3100	26.37	56.18	43.32	10.72	3.16	1.97 [Methanol (methyl alcohol)]
2017	0.3200	17.68	74.91	68.86	10.98	3.00	1.73 [Methanol (methyl alcohol)]
2016	0.3100	17.82	56.05	68.72	9.54	2.76	1.58 [Methanol (methyl alcohol)]
2015	0.3000	28.29	27.19	152.88	216.15	8.09	6.70 [Methanol (methyl alcohol)]

Review Engineer: Urva Patel

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue 10139/T09
Permit Issue Date:
Permit Expiration Date:

1. Purpose of Application:

Clearwater Paper Shelby, LLC (Clearwater) holds Title V Permit No. 10139T08 with an expiration date of July 31, 2021. The Title V renewal permit application (**Application No. 2300377.20B**) was received on September 11, 2020, which was at least six months prior to the expiration date of the Title V permit. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

2. Facility Description:

Clearwater Paper Shelby, LLC is located in Shelby, Cleveland County, North Carolina (Standard Industrial Classification [SIC] Code 2611 – Pulp Mills).

As per permit application, the Shelby mill is a non-integrated tissue mill, meaning pulp is shipped to the facility as a raw material and it is not manufactured at the site. The feedstock, primarily consisting of virgin pulp bales with some recycled broke bales from the converting operations, and water are loaded into the pulpers, each of which acts as a large blender to break the paper down into smaller and smaller pieces. The bales eventually turn into a slurry mixture known as pulp. The pulp contains strands of cellulose, called fibers, that eventually is made into tissue paper.

From the pulpers, the stock is fed through a series of screens, separators, and refiners to remove contaminants and fibers that are too short. Various process chemicals can be added throughout this process to achieve the correct process conditions and promote cleaning. The resulting pulp mixture, a majority of which is water, is sent to the paper machine for drying.

On the wet end of the paper machine, the pulp is sprayed onto a wire screen called the fabric. Once on the fabric, the water begins to drain from the pulp and the fibers begin to bond together forming a sheet. The sheet is then passed through a series of dryers to promote bonding and remove excess water. On the dry end of the paper machine, the finished paper product is wound around cores on the reel ("parent rolls") and sent to storage.

The converting operations convert the parent rolls into the consumer products. Paper is unwound from the parent rolls, embossed, rewound on cores, and packaged. Food-grade glues and Inks for date coders are used in this process. Clearwater also operates an offline printer to print colored designs on hand towels, a KD printer to print boxed for packaging, and a napkin line to manufacture paper napkins.

In addition to the paper making process, the Shelby mill also operates several ancillary activities which include two boilers, cooling towers, emergency engines, and water treatment processes.

3. History / Background / Application Chronology:

Permit History

August 26, 2016	Air Quality Permit No. 10139T05 issued with an expiration date of July 31, 2021. There were three permit applications consolidated in the permit number 10139T05: 1st time TV, State TV renewal and applicability determination. The 1st time Title V air quality permit included removal of unconstructed emergency generator (ID No. CPDEG02); update of the heat inputs and potential emissions calculations associated with the burners (ID Nos. TAD1 and TAD2); update of NC toxic emission limits associated for the same equipment; update the list of insignificant activities. The state operating permit renewal without modification per specific permit condition A.2 of the permit number 10139R04. The applicability determination included addition of a polyvinyl alcohol (PVOH) make down system (ID No. CPDS09) for dissolving granular PVOH in water to make a solution used in making paper, a wastewater system, and several insignificant activities.
April 18, 2017	Air Quality Permit No. 10139T06 issued with an expiration date of July 31, 2021. This TV 501(b)(2) Part I Significant Modification included addition of a second tissue manufacturing and converting plant. (It should be noted that the facility submitted both applications for the public file and confidential application for internal use only.)

April 6, 2020 — Air Quality Permit No. 10139T07 issued with an expiration date of March 31, 2021. This TV 501(b)(2) Part II Significant Modification included addition of insignificant activities (ID Nos. IS-CPDFP03, IS-CPD7AMUC1, IS-CPD1FCUC1, IS-BALERS1, and IS-BALERS2); removal of TAD from paper machine line #2; updated toxic air pollutant limits based on most recent air dispersion modeling; removal of emergency generators and fire-water pumps (ID Nos. IS-CPDEG01, IS-CPDEG02B, IS-CPDFP01, and IS-CPDFP02) from the existing list.

November 2, 2020 — Air Quality Permit No. 10139T08 issued with an expiration date of March 31, 2021. This Title V Significant Modification included a request to change designation of the eight existing air handling devised associated with Paper Machines Nos. 1 and 2 as inherent process equipment instead of air pollution control equipment, and remove the monitoring, recordkeeping, and reporting requirements associated with these devices.

Application Chronology

September 11, 2020 — Received this application for TV-renewal (2300377.20B).

September 14, 2020 — Sent acknowledgement letter indicating that the application (2300377.20B) for Title V permit renewal was complete.

February 23, 2021 — Draft permit and technical review sent to Supervisor for comments.

March 1, 2021 — Received e-mail from Megan Featherling, consultant for the facility, requesting changes to the permit.

April 9, 2021 — Urva Patel sent an e-mail to Kim Gissy, facility contact, regarding the identification of emission sources included in the air dispersion modeling. Ms. Gissy responded via e-mail on April 14, 2021.

May 7, 2021 — Draft permit and review sent to regional office, SSCB, and applicant for comments.

4. Summary of Changes to the Existing Permit (Permit No. 10139T08):

Page No.	Section	Description of Changes
Cover Letter	N/A	• Updated new cover letter with application number, permit numbers, dates, fee class, PSD increment statement, and Director name.
Permit Cover	N/A	• Inserted new issuance and complete application date, application number, facility information.
N/A	Insignificant Activity	• Added five natural gas-fired space heaters (**ID Nos. IS-CPD1SH and IS-CPD4SH**). • Removed Brunn Trim System (**ID No. CPDBRTIM2**).
4, 10	Section 1, Table 2.1 C	• Updated Converting Building No. 1 Operations. • Bath Tissue Lines (**ID Nos. BRT-3.CPDS01GO and BRT-3.CPDS01PR**), Bath/Towel Lines (**ID Nos. BHT-5.CPDS09GO, BHT-5.CPDS04GO, BHT-5.CPDS05GO, BHT-5.CPDS09PR, BHT-5.CPDS04PR, and BHT-5.CPDS05PR**), Household Towel Lines (**ID Nos. HHT-2.CPDS02GO, HHT-6.CPDS08GO, HHT-2.CPDS02PR, and HHT-6.CPDS08PR**), and Napkin Line (**ID Nos. NAP-1.CPDS07GO and NAP-1.CPDS07PR**) consolidated into one emission source (**ID No. CPDS01**). • Revised Emission Source Description (Converting Lines 1-6 and NAP) of **ID No. CPDS01.**
7	2.1 A.2	• Added 15A NCAC 02D. 0516 for all burners (**ID Nos. CPDTAD01, CPDTAD02, and CPDYANKEE**). • Renumbered remaining permit condition accordingly.

Page No.	Section	Description of Changes
9	2.1 B.4	• Revised NSPS permit condition language as per current version provided in TVCOND69.
11	TAPs	• Revised Converting Building No.1 Fugitives from ID No. CONVERT to ID CPDS01. • Converted lb/hr emission rate to appropriate units for each TAP. • Combined emissions from former mist exhaust separator (ID No. CPDFORMERMES2), the glue containment exhaust separator (ID No. CPDGLUEMES2), and the wet dust exhaust separator (ID No. CPDDUSTMES2) and attributed them to Paper Machine 2 (ID No. CPDPM02).
12	2.2 A.3	• Revised 15A NCAC 02Q .0711 permit condition language as per current version provided in TVCOND69.

5. Compliance Status:

DAQ has reviewed the compliance status of this facility. During the most recent inspection conducted on March 30, 2021, Karyan Kurek of the Mooresville Regional Office indicated that the facility (during COVID-19) appeared to be in compliance with all applicable requirements. Additionally, a signed Title V Compliance Certification (Form E5) indicating that the facility was in compliance with all applicable requirements was submitted with Application No. 2300377.20B.

Five-year Compliance History:

- The facility was inspected on March 30, 2021 appeared to be in compliance with all applicable air quality regulations.
- The facility was inspected on June 9, 2020 (Covid-19 – no site visit) and appeared to be in compliance with all applicable air quality regulations.
- On January 6, 2020, a Notice of Violation (NOV) was issued for circumvention of control devices for two events in August 2019 and September 2019. No civil penalty was assessed.
- On October 29, 2019, the facility submitted a deviation report for the third quarter of 2019. The report cited two deviations as follows:
  - During a manufacturer recommended inspection on August 2, 2019, it was discovered that CPDTADMISTMES exhaust fan was damaged and broken loose from the shaft. Emission source CPDPM01 continued to operate without emissions being controlled. Repairs to the exhaust fan were completed and normal operation was restored on August 16, 2019.
  - CPDFORMERMES exhaust fan failed to start up along with CPDPM01 following a planned down-day on September 17, 2019. The fan was repaired and restored to operation on September 18, 2019.

  On January 6, 2020, the facility was issued a NOV relating to the October 29, 2019 deviation report.
- The facility was inspected on May 22, 2019 and appeared to be in violation of 02D .0515 "Particulates from Miscellaneous Industrial Processes" for not maintaining the required production records for Paper Machine No. 2 (**ID No. CPDPM02-Plant 2**) and in violation of 02D .0524, NSPS-Subpart Dc for failure to maintain the required monthly fuel usage records for Boiler No. **CPDBOIL02** (Plant 2). The inspection report included a Summary of Changes needed to the permit as follows:
  - TAD Mist Exhaust Separator (249 square feet, ID No. CPDTADMISTMES#2) is not installed on this line (Line #2),
  - PVOH make-down system (ID No. CPDS29) was not installed with no plans to install this unit and should not be included in the modified permit,
  - ID No. CPDBOIL#02 Natural gas-fired boiler No. 2 equipped with low-NOx burners is not rated at 98 million Btu per hour. The faceplate is 96.7 million Btu per hour,
  - ID No. CPDS26# Offline printer is not installed at the facility and should not be included in the permit modification, and
  - ID No. IS-CPDFP02 Diesel-fired fire pump engine No. 2 (526 brake hp, 448 kW rated capacity) is installed in Plant 2. Notification of operation was received December 17, 2018. The faceplate indicated a brake hp of 176.8 and 220 kW and should be corrected in the permit modification.

  These changes were addressed with this issuance of Permit No. 10139T07.

On May 29, 2019, a Notice of Deficiency (NOD) was issued for record keeping requirements for **ID Nos. CPDPM02-Plant 2 and CPDBOIL02-Plant 2.**

- Clearwater stated in their response that process rate information required by the Permit was maintained and was available at the time of Ms. Karyn Barksdale's visit. Similarly, the fuel data records were maintained and were available, although not in a readily accessible form. Records of the CPDPM02 production records and CPDBOIL02 fuel records were provided with Clearwater's response.

- On June 21, 2018, Notice of Violation/ Notice of Recommendation for Enforcement (NOV/NRE) was issued for failure to perform the required control device monitoring on paper machine No. 1 (**ID No. CPDPM01**) for the month of April 2018. A civil penalty was assessed on July 24, 2018 and the penalty was paid in full on August 16, 2018.
- The facility was inspected on June 6, 2018 and appeared to be in violation of 02D .0515 "Particulate from Miscellaneous Industrial Processes", for not conducting the required monthly inspection for April 2018, on the Paper Machine No. 1 **(ID Nos. CPDPM01)** and associated control devices.
- On March 2, 2018, a NOV was issued for monitoring and recordkeeping (incomplete monthly visual inspection) for February 2017 of the paper machine No. 1 (**ID No. CPDPM01**), with associated collection system.
- On March 2, 2018, NOD was issued for reporting (incomplete monthly visual inspection) for February 2017 of the paper machine No. 1 (**ID No. CPDPM01**), with associated collection system.
- The facility was inspected on August 17, 2017 and appeared to be in compliance with all applicable air quality regulations.
- The facility was inspected on August 16, 2016 and appeared to be in compliance with all applicable air quality regulations.
- The facility was inspected on June 17, 2015 and appeared to be in compliance with all applicable air quality regulations.

6. New/Modified Equipment/Changes in Emissions:

This application is submitted as Title V – renewal. The following changes are requested with this permit application:

- The facility is requesting to combine the seven converting lines in Converting Building No. 1 into a single emission source (**ID No. CPDS01**) to maintain consistency with how the converting lines in Converting Building No. 2 are permitted.
- The facility is requesting to update the insignificant activities list by adding additional space heaters located in the Clearwater center warehouse and removing the Brunn Trim System (duplicate with Shelby 2 baler equipment.
- Several updates were made to the facility potential-to-emit (PTE) based on certain revisions to the calculation methodologies. These changes, however, did not impact the regulatory applicability.

Per Permit Renewal application submittal, the following changes were requested (see Form A1, A2 for more details):

Equipment to be ADDED:

Insignificant Activities:

Emission Source ID No.	**Emission Source Description**
IS-CPD1SH	One Natural Gas-fired Space Heater (0.2 million Btu per hour)
IS-CPD4SH	Four Natural Gas-fired Space Heater (0.1 million Btu per hour, each)

Equipment to be MODIFIED:

Emission Source ID No.	**Emission Source Description**
CPDS01 (below all are combined in one)	Converting Lines 1-6 and NAP
BRT-3CPDS01GO	Gluing Operations
BRT-3CPDS01PR	Printing Operations
BHT-1-CPDS05GO	Gluing Operations
BHT-1-CPDS05PR	Printing Operations
BHT-4-CPDS04GO	Gluing Operations
BHT-4-CPDS04PR	Printing Operations
BHT-5-CPDS09GO	Gluing Operations
BHT-5-CPDS09PR	Printing Operations
HHT-2-CPDS02GO	Gluing Operations

Emission Source ID No.	Emission Source Description
HHT-2-CPDS02PR	Printing Operations
HHT-6-CPDS08GO	Gluing Operations
HHT-6-CPDS08PR	Printing Operations
NAP-1-CPDS07GO	Gluing Operations
NAP-1-CPDS07PR	Printing Operations

Equipment to be REMOVED:

Emission Source ID No.	Emission Source Description
IS-CPDBRTIM2	Brunn Trim System

Five natural gas-fired space heater (**ID Nos. IS-CPD1SH and IS-CPD4SH**) will be installed as insignificant activities. The facility will remove Brunn Trim System (**ID No. IS-CPDBRTIM2**).

Five natural gas-fired space heaters (**IS-CPD1SH and IS-CPD4SH**):
Potential Hours of Operation: 8760 hours/year
Natural Gas Heating Value: 1026 Btu/sf

Air Pollutants	Emission Factors lb/MMscf	IS-CPD1SH (1 Unit) Potential Emissions, tpy	IS-CPD4SH (4 Units) Potential Emissions, tpy
Particulate Matter (PM)	0.52	4.4E-04	8.9E-04
PM<10 μm (PM_{10})	0.52	4.4E-04	8.9E-04
PM<2.5 μm ($PM_{2.5}$)	0.43	3.7E-04	7.3E-04
Sulfur dioxide (SO_2)	0.6	5.1E-04	1.0E-03
Nitrogen oxides (NOx)	100	8.5E-04	0.17
Carbon monoxide (CO)	84	7.2E-02	0.14
VOC	5.5	4.7E-03	9.4E-03
CO_2e		102.58	205.16
Total HAPs		1.6E-03	3.2E-03

Greenhouse Gas Emission factors (based on global warming potentials in 40 CFR 98 Subpart A Table A-1 (Dec 2014))
CO_2: 53.06 kg/MMBtu; CH_4: 1.0E-03 kg/MMBtu; N_2O: 1.0E-04 kg/MMBtu

These sources qualify as insignificant activities due to amount of emissions pursuant to 15A NCAC 02Q .0503(8). An insignificant activity means any activity that meets the following:
"...whose emissions potential emission of particulate, sulfur dioxide, nitrogen oxides, volatile organic compounds, and carbon monoxide before air pollution control devices, i.e., potential uncontrolled emissions, are each no more than five tons per year and whose potential emissions of hazardous air pollutants before air pollution control devices, are each below 1000 pounds per year."

Uncontrolled criteria emissions from the proposed emission sources are less than five tons per year and HAPs emissions are less than 1,000 pounds per year as shown in the table/calculations above. No permit is required for installation and operation of this equipment.

As per email from Ms. Megan Featherling on March 1, 2021, the two primary changes include:

- VOC/HAP/TAP emissions for the paper machines (CPDPM01 and CPDPM02) and pulpers (IS-CPDPULP01 through IS-CPDPULP06) were added based on NCASI documentation. Note, these changes did not impact state toxics modeling (see Section 4.2.8 of the text).

VOC, HAP, and TAP emissions from the paper making processes at each site, including both pulping and the paper machine, were quantified using National Council for Air and Stream Improvement (NCASI) emission factors published in the "Air Toxics - Master Summary Table for Pulp and Paper Mills" (May 2019) and the maximum production rate of 14 air dried tons finished product (ADTFP) per hour. Note, Clearwater consulted NCASI to identify chemical species released from the break-down of pulp; chemical species associated with chemical additives were quantified as described below. VOC emissions were quantified by summing the emissions data for the individual organic species. Below is an example calculation for VOC from the Shelby 1 paper machine.

VOC Potential Emissions - CPDM01
= Capacity (ADTFP/hr) x EF (lb/ADTFP) x 8760 (hr/yr) ÷ 2000 lb/ton
= 14 (ADTFP/hr) x 0.24 (lb/ADTFP) x 8760 (hr/yr) ÷ 2000 lb/ton
= 14.91 tpy

Additives such as polymers, defoamers, strength enhancers, sizing, and scale inhibitors are used in the paper making process. Clearwater quantified emissions of VOC, HAP, and TAP from these chemical additives using a mass balance approach and assuming 100% of the volatile components are emitted based on information provided in safety data sheets (SDS), except for methanol. Based on studies completed by NCASI, Clearwater estimates that at most 25% of methanol present in additives are emitted to atmosphere as air emissions. A generic formula demonstrating this methodology is provided below.

VOC Potential Emissions - Chemical Additives
VOC (tpy) = Potential usage **(lb/hr)** *x* VOC Content (%) x 8,760 hr/yr ÷ 2,000 lb/ton

Particulate matter (PM) emissions from the paper making process were quantified using NCASI emission factors published in the "Master Summary Table of NCASI Emissions Factors for Pulp and Paper Mills - Criteria Air Pollutants" (Oct 2015) and the maximum production rate of 14 ADTFP per hour. Total PM, PM10, and PM2.5 were taken as the sum of the filterable and condensable portions. The methodology used is similar to the equation for VOC from pulp presented above. Each paper machine is equipped with four inherent systems that have the co-benefit of reducing PM emissions. However, these systems are not considered air pollution control devices. Due to their inherent nature, the potential uncontrolled emissions account for the emission reductions from these systems. Please refer to permit application 2300377.20A (PDF) for more detailed calculations.

Converting operations require the use of certain glues and inks. VOCs, HAP, and TAP emissions from these materials were quantified using a mass balance approach and assuming 100% of the volatile components are emitted based on information provided in manufacturer's data, this methodology is similar to that used to quantify emissions from the paper making process additives.

- Emissions from natural gas sources (CPDTAD01, CPDTAD02, CPDYANKEE, CPDBOIL01, CPDBOIL02, and insignificant heaters) were updated to use NCDAQ's natural gas combustion spreadsheet.

The Shelby mill operates a number of natural gas combustion sources: two boilers, each rated at less than 100 million British thermal units per hour (MMBtu/hr), two through air dryer (TADs) at Shelby 1, and one Yankee dryer at Shelby 2. Emission factors (EF) for criteria pollutants, HAP, and North Carolina toxic air pollutants (TAP) were taken from the Division of Air Quality (DAQ) *Natural Gas Combustion Emissions Calculator (Revision* N, 5 Jan 2017). Manufacturer's emissions data were used as available. Below is an example calculation for VOC emissions from CPDBOIL02.

VOC Potential Emissions - CPDBOIL02

VOC (tpy)
= Capacity (mmBtu/hr) x EF (lb/MMscf) ÷ Heating Value (mmBtu/MMscf) x8,760 (hr/yr) ÷ 2,000 lb/ton
= 96.7 (mmBtu/hr) x 5.5 (lb/MMscf) ÷ 1,026 (mmBtu/MMscf) x8,760 (hr/yr) ÷ 2,000 (lb/ton) = 2.27 tpy

Minor changes without any significant impact to the resulting emissions were also made for chemical additives used in the paper making and converting processes. The emission estimates were updated based on the most recent potential usage data and SDSs (i.e., supplier change).

Summary of Criteria Pollutant and Greenhouse Gas Potential Emissions (tpy)

ID	Emission Source	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC	CO_2e
CPDPM01	Paper Machine No. 1	15.36	12.82	11.64	---	---	---	71.49	---
CPDTAD01	Natural Gas-Fired TAD Burner No. 1	0.23	0.23	0.19	0.27	16.56	101.18	2.47	53,853
CPDTAD02	Natural Gas-Fired TAD Burner No. 2	0.12	0.12	0.10	0.14	7.88	48.18	1.29	28,209
CPDS09	PVOH Make-Down System No. 1	---	---	---	---	---	---	1.23	---
CPDPM02	Paper Machine No. 2	19.63	16.35	14.90	---	---	---	129.48	---
CPDYANKEE	Natural Gas-Fired Burners	8.7E-02	8.7E-02	7.2E-02	0.10	53.44	88.91	0.93	20,208
CPDBOIL01	Natural Gas-Fired Boiler No. 1	1.70	1.70	1.70	0.20	12.24	25.49	1.36	39,800
CPDBOIL02	Natural Gas-Fired Boiler No. 2	0.21	0.21	0.18	0.88	18.64	19.06	2.27	49,596
CPDS01	Seven (7) Converting Lines	---	---	---	---	---	---	2.23	---
CPDS03	KD Printer	---	---	---	---	---	---	9.5E-02	---
CPDS06	Offline Printer for Household Towels	---	---	---	---	---	---	7.51	---
CPDS21	Four (4) Converting Lines BHT1-4	---	---	---	---	---	---	5.35	---
IS-CPDEG01	Natural Gas-Fired Emergency Generator No. 1	3.2E-03	3.2E-03	3.2E-03	9.7E-05	0.29	1.47	8.5E-02	19.40
IS-CPDEG02B	Natural Gas-Fired Emergency Generator No. 2B	2.6E-03	2.6E-03	2.6E-03	7.8E-05	0.19	1.52	0.19	15.59
IS-CPDFP01	Diesel-Fired Fire Pump Engine No. 1	1.2E-02	1.2E-02	1.2E-02	1.6E-03	0.75	0.12	2.9E-02	149.02
IS-CPDFP02	Diesel-Fired Fire Pump Engine No. 2	1.7E-02	1.7E-02	1.7E-02	6.2E-04	0.34	0.30	0.34	59.83
IS-CPDFP03	Diesel-Fired Fire Pump Engine No. 3	2.1E-02	2.1E-02	2.1E-02	7.9E-04	0.43	0.37	0.43	75.64
IS-CPDPULP01	Pulper No. 1	---	---	---	---	---	---	7.4E-02	---
IS-CPDPULP02	Virgin Pulper No. 1	---	---	---	---	---	---	0.33	---
IS-CPDPULP03	Virgin Pulper No. 2	---	---	---	---	---	---	0.33	---
IS-CPDPULP04	Pulper No. 2	---	---	---	---	---	---	7.4E-02	---
IS-CPDPULP05	Virgin Pulper No. 3	---	---	---	---	---	---	0.33	---
IS-CPDPULP06	Virgin Pulper No. 4	---	---	---	---	---	---	0.33	---
IS-CPDMCT	Marley Cooling Tower	4.7E-02	4.7E-02	4.7E-02	---	---	---	---	---
IS-CPDCT2	Cooling Tower No. 2	0.17	0.17	0.17	---	---	---	---	---
IS-CPDCT3	Cooling Tower No. 3	4.3E-02	4.3E-02	4.3E-02	---	---	---	---	---
IS-CPD4PT	Four Process Tanks	---	---	---	---	---	---	Note 1	---
IS-CPD2PT2	Process Tanks	---	---	---	---	---	---	Note 1	---
IS-CPD2DT	One Diesel Tank	---	---	---	---	---	---	4.8E-04	---
IS-CPD2DT3	Three Diesel Tanks	---	---	---	---	---	---	1.4E-03	---
IS-CPD2PTFO	Two Propane Tanks	---	---	---	---	---	---	Note 2	---
IS-CPD2PTFO2	One Propane Tank	---	---	---	---	---	---	Note 2	---
IS-CPD4DFDSS1	Four Dry Sorgato Systems	11.01	11.01	11.01	---	---	---	---	---
IS-CPD4SODSS2	Four Wet Sorgato Systems	11.01	11.01	11.01	---	---	---	---	---
IS-CPD5AMUC2	Five Natural Gas-Fired Air Makeup Units	5.3E-02	5.3E-02	4.4E-02	6.1E-02	10.25	8.61	0.56	12,309
IS-CPD1AMUC2	Natural Gas-Fired Air Makeup Unit 1	1.3E-02	1.3E-02	1.0E-02	1.4E-02	2.41	2.02	0.13	2,893
IS-CPD1AMUPB2	Natural Gas-Fired Air Makeup Unit 2	3.1E-03	3.1E-03	2.6E-03	3.6E-03	0.60	0.50	3.3E-02	718.05
IS-CPD1FCUP2	Natural Gas-Fired False Ceiling Unit	5.8E-03	5.8E-03	4.8E-03	6.7E-03	1.11	0.93	6.1E-02	1,334
IS-CPD7AMUC1	Seven Natural Gas-Fired Air Makeup Units	9.3E-02	9.3E-02	7.7E-02	0.11	17.93	15.06	0.99	21,541
IS-CPD1FCUC1	Natural Gas-Fired False Ceiling Unit	3.3E-03	3.3E-03	2.8E-03	3.8E-03	0.64	0.54	3.5E-02	769.33
IS-CPD4SH	Four Natural Gas-Fired Space Heaters	8.9E-04	8.9E-04	7.3E-04	1.0E-03	0.17	0.14	9.4E-03	205.16
IS-CPD1SH	Natural Gas-Fired Space Heater	4.4E-04	4.4E-04	3.7E-04	5.1E-04	8.5E-02	7.2E-02	4.7E-03	102.58
IS-BALERS1	S1 Baler Equipment	5.96	4.43	1.17	---	---	---	---	---
IS-BALERS2	S2 Baler Equipment	3.58	2.66	0.70	---	---	---	---	---
Totals		**69.39**	**61.12**	**53.12**	**1.79**	**143.94**	**314.48**	**230.08**	**231,858**

[1] Any emissions from these vessels are already accounted for in the paper machine and converting emission calculations.
[2] All propane tanks are pressurized. Therefore, emissions are assumed to be negligible.

The Department has agreed and revised permit condition 2.1 A.1 as per email from Ms. Kim Gissy on May 18, 2021 (**Drafts Review comment**),

- Section 2.1.A.1a, c, d: The removal of the TAD and Yankee burner references to PM emissions:
  The burners are not subject to 02D .0515. "Process rate" specifically excludes gaseous fuels. Per the PTE calculations, the only PM emitted from the burner stacks is associated with fuel combustion. The "process rate" should only reference pulp/paper moving through the machine, and PM emissions associated with that activity are only associated with CPDPM01 and CPDPM02.

7. Regulatory Review

Unless specifically noted, a detailed discussion of the following list of permit conditions is not included as applicability status has not changed. The facility is expected to be in continued compliance.

2.1 Permitted Emission Sources and Associated Air Pollution Control Devices:

A. Paper Machine No. 1 (ID No. CPDPM01)
Paper Machine No. 2 (ID No. CPDPM02)
Natural gas direct-fired TAD 1 to 2 low-NOx burners (ID Nos. CPDTAD01 and CPDTAD02)
Natural gas-fired low-NOx burners (ID No. CPDYANKEE)
One PVOH make-down system (ID Nos. CPDS09)
Two wastewater treatment systems (ID Nos. CPDWW01 and CPDWW02)

Applicable Regulatory Requirements:

- 15A NCAC 02D .0515 "Particulates from Miscellaneous Industrial Processes" for the paper machines (ID Nos. CPDPM01 and CPDPM02)
- 15A NCAC 02D .0516, "Sulfur Dioxide Emissions from Combustion Sources" for the burners (ID Nos. CPDTAD01, CPDTAD02, and CPDYANKEE)
- 15A NCAC 02D .0521 "Control of Visible Emissions"
- 15A NCAC 02D .1806 "Control and Prohibition of Odorous Emissions"
- 15A NCAC 02D .1100: "Control of Toxic Air Pollutants"
- 15A NCAC 02Q .0711 "Emission Rates Requiring a Permit"

B. Two natural gas-fired boilers, each equipped with low-NOx burners (ID Nos. CPDBOIL01 and CPDBOIL02)

Applicable Regulatory Requirements:

- 15A NCAC 02D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers"
- 15A NCAC 02D .0516 "Sulfur Dioxide Emissions from Combustion Sources"
- 15A NCAC 02D .0521 "Control of Visible Emissions"
- 15A NCAC 02D .0524 "New Source Performance Standards" 40 CFR Part 60 Subpart Dc
- 15A NCAC 02D .1806 "Control and Prohibition of Odorous Emissions"
- 15A NCAC 02D .1100: "Control of Toxic Air Pollutants"
- 15A NCAC 02Q .0711 "Emission Rates Requiring a Permit"

C. Converting Building No. 1 Operations consisting of:
Converting Lines 1-6 and NAP (ID No. CPDS01)
Printers (ID Nos. CPDS03 and CPDS06)

Converting Building No. 2 Operations consisting of
Converting Lines 7-10 (ID No. CPDS21)

Applicable Regulatory Requirements:

- 15A NCAC 02D .1806 "Control and Prohibition of Odorous Emissions"
- 15A NCAC 02D .1100: "Control of Toxic Air Pollutants"
- 15A NCAC 02Q .0711 "Emission Rates Requiring a Permit"

8. NSPS, NESHAP/MACT, NSR/PSD, 112(r), CAM

NSPS
This facility is subject to the following New Source Performance Standards (NSPS), 40 CFR 60. However, this permit renewal does not affect this status.

- 40 CFR Part 60 Subpart Dc for Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units – The natural gas-fired boilers (**ID Nos. CPDBOIL01 and CPDBOIL02**) at this facility are subject to this regulation.

- 40 CFR 60, Subpart IIII for Stationary Compression Ignition Internal Combustion Engines
- 40 CFR 60, Subpart JJJJ for Stationary Spark Ignition Internal Combustion Engines

NESHAP/MACT
This facility is a minor source for HAP emissions and is subject to the National Emission Standards for Hazardous Air Pollutants, 40 CFR 63 Subpart ZZZZ. However, this permit renewal does not affect this status.

- GACT Subpart ZZZZ for National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines – The natural gas-fired generators (**ID Nos. CPDEG01 and CPDEG02B**) and diesel-fired fire pumps (**ID Nos. IS-CPDFP01, IS-CPDFP02, and IS-CPDFP03**) are subject to this regulation.

  "NESHAP for Stationary Reciprocating Internal Combustion Engines, 40 CFR Part 63," Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAPs emissions. Based on the facility's potential to emit, this facility is not a major source of HAPs. However, GACT Subpart ZZZZ applies to area sources and does apply to the facility's fire pump engine and emergency generator.

  As per 40 CFR Part 63.6590(c), an affected source that meets the requirements of NSPS Subpart IIII for compression ignition engines or NSPS Subpart JJJJ for spark ignition engines meets the requirements of GACT Subpart ZZZZ. Compliance is expected.

- 40 CFR Part 63 Subpart JJJJJJ for Industrial, Commercial, and Institutional Boilers Area Sources – As specified in 40 CFR 63.11195(e), gas fired boilers are not subject to "NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters for Area Sources," 40 CFR 63 Subpart JJJJJJ, or GACT 6J. Thus, the facility's natural gas-fired boilers equipped with low-NOx burners (**ID Nos. CPDBOIL01 and CPDBOIL02**), which only fires natural gas, is not subject to GACT 6J.

NSR/PSD
The facility is a major source under the Prevention of Significant Deterioration (PSD) program due to emissions of CO. The facility is located in Cleveland County, which is in attainment with all national ambient air quality standards (NAAQS) and not part of the Charlotte-Gastonia-Rock Hill, NC-SC; 1997 Ozone Attainment/ Maintenance area. PPG triggered the PSD minor source baseline date for PSD increment tracking in Cleveland County on April 30, 1979 for particulate matter (PM10) emissions and February 10, 1978 for sulfur dioxide (SO2) emissions. Cleveland Co. Generating Facility triggered the PSD minor source baseline date on April 21, 2008 for NOx.

This permit renewal does not result in an any increase of air emissions. Therefore, this permit renewal does not affect these triggered pollutants.

112(r)
This facility is NOT subject to the requirements of the Chemical Accident Release Prevention Program, Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above applicability thresholds. The facility is subject to the General Duty requirements of 112(r).

Compliance Assurance Monitoring (CAM)

Pursuant to 40 CFR 64.2, the provisions of the Compliance Assurance Monitoring (CAM) rule are applicable to emission units that meet all the following criteria:

Criteria #1: The unit is subject to an emission limitation AND uses a control device to achieve compliance with the limit;
Criteria #2: The unit has pre-control potential emissions that are equal to or greater than 100% of the amount (in tpy) required for a source to be classified as a major source; and,
Criteria #3: The unit is not exempt under 40 CFR 64.2(b).

The facility is NOT currently subject to CAM because there is no control device used in the Shelby plant. The eight existing air handling devices associated with Paper Machines Nos. 1 and 2 were reclassified as inherent process equipment

rather than air pollution control equipment under Air Permit No. 10139T08 issued on November 2, 2020. This permit renewal does not affect the status of this permit.

9. Facility-Wide Air Toxics:

Clearwater is subject to NC Air Toxics. The current permit includes emission rates that were optimized for the air dispersion modeling used to demonstrate compliance with 15A NCAC 02D .1100. The air dispersion modeling was reviewed by Nancy Jones of the AQAB, and the results were approved in a memorandum dated November 20, 2019. The modeled emission rates are provided in the table below and included in the air permit. Because optimized emissions were used in the air dispersion modeling, no monitoring, recordkeeping, or reporting is required to demonstrate compliance with NC Air Toxics.

Affected Source(s)	Toxic Air Pollutant	Emission Limits
Pulper (used for broke) (ID No. IS-CPDPULP01) Virgin Pulper No. 1 (ID No. IS-CPDPULP02) Virgin Pulper No. 2 (ID No. IS-CPDPULP03)	Toluene	368 lb/hr
		8,832 lb/day
PM1 TAD 1 Burners (CPDTAD01)	Benzene	814.6 lb/yr
	Formaldehyde	2.82 lb/hr
	Toluene	1.59 lb/hr
		38.2 lb/day
PM1 TAD 2 Burners (CPDTAD02)	Benzene	426.6 lb/yr
	Formaldehyde	1.47 lb/hr
	Toluene	0.834 lb/hr
		20.0 lb/day
Converting Building No. 1 Fugitives (CPDS01)	Acetaldehyde	131 lb/hr
	Ammonia	13.1 lb/hr
	Benzene	1.61 lb/yr
	Methylene chloride	5.79 lb/hr
		50,720 lb/yr
	Methyl ethyl ketone	103 lb/hr
		2,472 lb/day
	Methyl isobutyl ketone	71.2 lb/hr
		1,709 lb/day
	Styrene	50.4 lb/hr
	Toluene	0.39 lb/hr
		9.36 lb/day
Boiler No. 1 (ID No. CPDBOIL01)	Benzene	1.39 lb/yr
	Formaldehyde	5.66E-03 lb/hr
	Toluene	2.57E-04 lb/hr
		6.17E-03 lb/day
Pulper No. 2 (used for broke) (ID No. IS-CPDPULP04)	Toluene	364 lb/hr
		8,736 lb/day
Virgin Pulper No. 3 (ID No. IS-CPDPULP05) Virgin Pulper No. 4 (ID No. IS-CPDPULP06)	Toluene	4.04 lb/hr
		97.0 lb/day
PM2 Yankee burner (CPDYANKEE)	Acetaldehyde	8.09E-03 lb/hr
	Benzene	305.7 lb/yr
	Formaldehyde	1.06 lb/hr
	Toluene	0.597 lb/hr

Affected Source(s)	Toxic Air Pollutant	Emission Limits
		14.3 lb/day
PM2 (ID No. CPDPM02)	Acetaldehyde	0.0405 lb/hr
	1, 4-Dioxane	213.7 lb/yr
	Ethylene Oxide	1.79 lb/day
Converting Building No. 2 Fugitives (ID No. CPDS21)	Acetaldehyde	131 lb/hr
	Ammonia	13.1 lb/hr
	Benzene	242.7 lb/yr
	Methylene chloride	5.79 lb/hr
		50,720 lb/yr
	Methyl ethyl ketone	103 lb/hr
		2,472 lb/day
	Methyl isobutyl ketone	71.2 lb/hr
		1,709 lb/day
	Styrene	50.4 lb/hr
	Toluene	0.861 lb/hr
		20.7 lb/day
Boiler No. 2 (ID No. CPDBOIL02)	Benzene	1.74 lb/yr
	Formaldehyde	7.11E-03 lb/hr
	Toluene	3.22E-04 lb/hr
		7.73E-03 lb/day
PM2 (ID No. CPDPM02) Fugitive sources	Benzene	20.1 lb/yr
	Formaldehyde	0.0697 lb/hr
	Toluene	0.0394 lb/hr
		0.946 lb/day

The most recent air dispersion modeling (October 2019) included the former mist exhaust separator (ID No. CPDFORMERMES2), the glue containment exhaust separator (ID No. CPDGLUEMES2), and the wet dust exhaust separator (ID No. CPDDUSTMES2) as separate emission points. These control devices were deemed inherent controls and were removed as control devices for Paper Machine 2 (ID No. CPDPM02) under Air Permit No. 10139T08 issued on November 2, 2020. For consistency with the permit, TAP emissions from these emission points were combined and attributed to Paper Machine 2 in the TAP table above and in the permit.

Previous versions of the air dispersion included emissions from the vacuum, former mist exhaust separator, and TAD mist separator in Paper Machine 1. An assessment completed in 2019 found no TAPs emitted from these three emission points, and they were not included in the most recent air dispersion modeling.

10. Facility Emission Review:

Actual emissions for 2015 through 2019 are reported in the header of this permit review.

Facility-Wide Emissions Summary from permit application (2300377.20B):

Pollutant	Potential Emissions – Form D1 (Before controls / Limitations)	Potential Emissions – Form D1 (After controls / Limitations)
	Tons per year (tpy)	
Particulate Matter (PM)	69.39	69.39
PM<10 μm (PM_{10})	61.12	61.12
PM<2.5 μm ($PM_{2.5}$)	53.12	53.12
Sulfur dioxide (SO_2)	1.79	1.79
Nitrogen oxides (NOx)	143.94	143.94
Carbon monoxide (CO)	314.48	314.48

Pollutant	Potential Emissions – Form D1 (Before controls / Limitations)	Potential Emissions – Form D1 (After controls / Limitations)
	Tons per year (tpy)	
Volatile Organic Compounds (VOC)	230.08	230.08
Lead	0	0
Hazardous Air Pollutants (HAP)		
Largest Individual HAP (Methanol	9.95	9.95
Total HAP	20.24	20.24
Toxic Air Pollutants (TAP)		
Ammonia	-	12547.26 lb/year
Benzene		12.28 lb/year
Formaldehyde		1010.48 lb/year
GREENHOUSE GASES (GHG)		
CO_2 Equivalent (CO_2e)	231,858	231,858

12. Public Notice/EPA and Affected State(s) Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also, pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above. South Carolina and Mecklenburg County local program are affected state and local program within 50 miles of the facility.

13. Other Regulatory Considerations:

- A Permit Application fee is NOT required for Permit Application No. 2300377.20B.
- A P.E. Seal is NOT required for Permit Application No. 2300377.20B.
- A Zoning Determination is NOT required for Permit Application No. 2300377.20B.
- A 30-day public notice and 45-day EPA review is required for Permit Application No. 2300377.20B as noted above.

14. Recommendations/Conclusion:

TBD